

**WHAT IS CLAIMED IS:**

1. Apparatus for receiving dc power and digital signals on a single wire pair, the apparatus comprising:

first means, responsive to power and the digital signals, for producing output power and output digital signals having a predetermined polarity; and

second means for detecting the digital signals having the predetermined polarity output by the first means.

2. The apparatus as recited in claim 1, wherein the digital signals having the predetermined polarity comprise digital audio signals.

3. The apparatus as recited in claim 1, wherein the digital signals having the predetermined polarity comprise digital audio signals and control signals.

4. The apparatus as recited in claim 1, wherein the second means comprises a high pass filter.

5. The apparatus as recited in claim 1, wherein:  
the digital signals having the predetermined polarity comprise balanced digital signals; and  
the second means comprises a differential detector.

6. The apparatus as recited in claim 1, wherein the first means comprises a rectifier.

7. The apparatus as recited in claim 6, wherein the rectifier comprises a full wave bridge rectifier.

8. The apparatus as recited in claim 1, wherein the first means comprises a demultiplexer.

9. An interface routing power and digital signals to a load, comprising:

a rectifier receiving the power and the digital signals over a single wire pair and producing rectified power and rectified digital signals for setting the polarity to the data signals; and

a separator for separating the rectified power driving the load from the rectified digital signals controlling output of the load.

10. The interface as recited in claim 9, wherein the rectified digital signals comprise rectified digital audio signals.

11. The interface as recited in claim 9, wherein the rectified digital signals comprise rectified digital audio signals and control signals.

12. The interface as recited in claim 9, wherein the load comprises an amplifier.

13. The interface as recited in claim 9, wherein the separator comprises a high pass filter.

14. The interface as recited in claim 9, wherein:  
the rectified digital signals comprise balanced digital signals; and  
the separator comprises a differential detector.

15. The interface as recited in claim 9, wherein the rectifier comprises a full wave bridge rectifier.

16. A speaker including an amplifier energized by rectified power and driven in response to rectified digital signals applied to the amplifier, the rectified power and rectified digital signals being provided to the speaker via the interface recited in claim 9.

17. The speaker as recite in claim 16, further comprising a filter network routing the rectified power to the amplifier.

18. A speaker system comprising first and second speakers, each of the first and second speakers including an amplifier energized by rectified power and driven in response to rectified digital signals applied to the amplifier, the rectified power and rectified digital signals being provided to each of the speakers via a respective interface as recited in claim 9.

19. The speaker system as recite in claim 18, wherein each of the speakers further comprises a filter network routing the rectified power to a respective amplifier.

20. A method for driving a powered load with digital signals over a two wire pair, comprising:

receiving power and the digital signals at input terminals of a rectifier;  
rectifying both the power and the digital signals to thereby generate rectified power and rectified digital signals output at output terminals of the rectifier;

coupling the rectified power to power input terminals of the powered load;  
generating digital data signals responsive to the rectified digital signals;  
and

applying the digital data signals to signal input terminals of the powered load to thereby drive the powered load.

21. The method as recited in claim 20, wherein:

the powered load further comprises a control signal input terminal,  
the rectified digital signals comprise the digital data signals and digital control signals; and

the powered load operates on the digital data signals under control of the digital control signals applied to the control signal input terminal.

22. The method as recited in claim 21, wherein the digital data signals comprise digital audio signals.

23. The method as recited in claim 20, wherein the digital data signals comprise digital audio signals.